BROOKHAVEN NATIONAL LABORATORY NATIONAL SYNCHROTRON LIGHT SOURCE Test Procedures	**Number:** LS-PSG-T001	**Revision:** C
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Subject:

RING ACCESS FOR MAGNET MEASUREMENTS

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Revision/Review Log

Introduction

The main magnet voltage measurements are usually taken after each extended maintenance period for the Booster, VUV and X-Ray Rings. The purpose of these measurements is to insure there are no coil-to-coil shorts inside the magnets.

Warning! A potential radiation hazard exists when any magnet string can be energized. The safety shutters for each ring are electrically controlled and can inadvertently open, creating a potential radiological hazard to the personnel in the ring. To prevent this from happening, the AC power is locked out and red-tagged on BUD for the VUV ring, and BXD for the X-Ray ring. For the Booster ring, all three Modulators and Gun are locked out and red-tagged. This allows for two independent interlocks, thus removing any source of radiation.

Warning! Electrical hazards exist when ring security is disabled; this would permit the magnet strings to be energized. This can be accomplished by engaging the Security Bypass Kirk-Key, which is located at the entranceway to the respective ring.

The minimum number of **authorized personnel** to perform the magnet measurements is three, with two communication radios. Two people will be allowed to enter the ring while the third will station his/her self at the entrance.

The person posted at the entrance is not, under any circumstances to leave his/her post until all personnel have exited the ring!

There are two entrances for the Booster ring. The door located in the Linac area will be locked with the Booster ring security key. The person posted at the entrance will maintain possession of this key until the testing is completed.

Note 1: This is not a working hot permit or procedure. This procedure has been developed to preclude a working hot situation.
Note 2: Only an *Authorized Employee,* as outlined in the ES&H standards 1.5.0 Electrical Safety and 1.5.1 Lockout/Tagout Requirements will perform this procedure.

Procedure

1. Notify Control Room and they will search and lock the ring door without actual ring security being made. The authorized personnel who are involved in the testing are given control of the ring.

2. Lockout/Tagout the appropriate devices for electrical and radiation safety.

3. Remove power supplies security bypass key from ring security rack and insert into Security Bypass Kirk-Key located at the ring entrance.

4. Two authorized persons with radio can now enter the ring. Another person will be standing by the entrance with a radio, until the completion of the test.

5. With the door secured, the power supplies can now be turned on, and testing can begin.

6. After testing is completed, the personnel conducting the tests will exit the ring and remove the key from the Security Bypass Kirk-Key block. This will cause all power supplies to trip off on security fault.

7. The Security Bypass Key must now be returned to the ring security rack in order to secure the ring for operation.

8. Remove all locks and red tags from devices.

9. The Authorized person in charge is to notify the Control Room that magnet testing is completed.

10. Return radios to the Control Room and file data accordingly.